

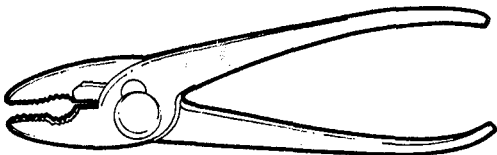
# Chapter 17 PLIERS AND TONGS

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## HOW TO CHOOSE AND USE THEM

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The “Types and Uses” section provides you with a list of some types of pliers and tongs. These pages should help you select the right pair to do the job.



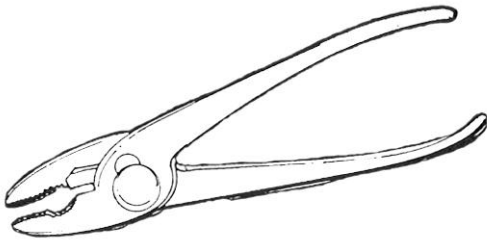
The “Using” section tells you how to use the pliers or tongs to perform the desired function. The “Care” procedures tell you how to care for the items.

### INDEX

<i>Item</i>	<i>Page</i>
TYPES AND USES .....	17-2
Slip-joint pliers .....	17-2
Diagonal cutting pliers .....	17-2
Lineman's side cutting pliers .....	17-2
Parallel jaw pliers .....	17-2
Flat-nose pliers .....	17-2
Round-nose pliers .....	17-2
Straight-lip flat-jaw tongs .....	17-3
End cutting pliers .....	17-3
Wire strippers .....	17-3
USING .....	17-3
CARE .....	17-5

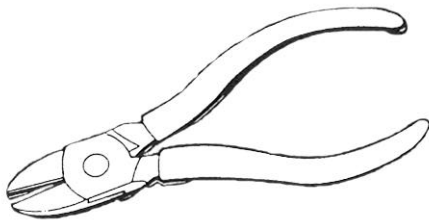
## TYPES AND USES

### SLIP-JOINT PLIERS



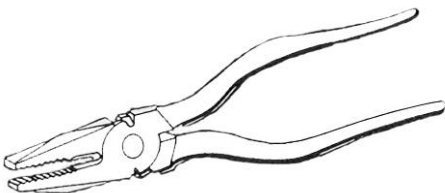
The slip-joint combination pliers have serrated (grooved) jaws, with a rod-gripping section, a cutting edge, and a pivot. The serrated jaws and rod-gripping section are used to hold objects. The cutting edge permits the cutting of soft wire and nails. However, cutting hard materials or large gage wire will spring the jaws, making the pliers useless. The pivot is used to adjust the jaw opening to handle large or small objects.

### DIAGONAL CUTTING PLIERS



The diagonal cutting pliers have a fixed pivot. The jaws are offset by about 15 degrees and are shaped to give enough knuckle clearance while making flush cuts. The diagonal cutting pliers are used for cutting small, light materials such as wire, cotter pins, and similar materials. These pliers are not to be used to hold or grip objects.

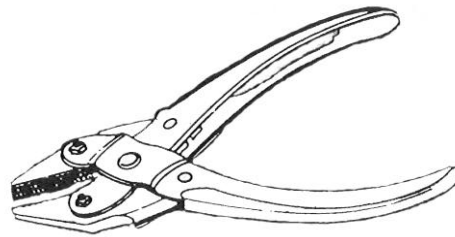
### LINEMAN'S SIDE CUTTING PLIERS



The lineman's side cutting pliers have serrated jaws, a rod-gripping section, side cutters, wire cropper, a fixed pivot, and parallel handles. The flat serrated jaws are used to bend sheet metal and twist electrical wire. The rod-gripping section is used to hold rods and bend small rods. The side cutters are located just above the pivot

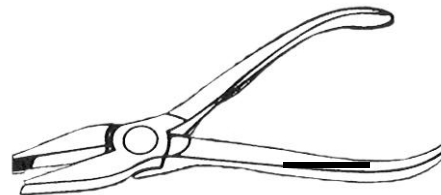
point, where maximum pressure may be applied. They are ground at an angle permitting sharp flush cuts on electrical wire. A pair of croppers is located above the pivot. They are used to shear larger wire. Lineman's pliers used around electrical circuits have insulated sleeves over the handles to reduce the possibility of electrical shock.

### PARALLEL JAW PLIERS



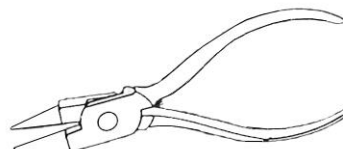
The parallel jaw pliers are constructed so that the jaws remain parallel to each other throughout the entire distance of travel. It has two jaws, a pivot pin, curved handles, and tension springs. The tension springs are contained within the curved handles and will open the jaws when the handles are released. These pliers are used to grip objects which have flat surfaces.

### FLAT-NOSE PLIERS



The flat-nose pliers have flat serrated jaws, a fixed pivot, and curved handles which may have insulated sleeves. These pliers are used to bend light sheet metal and wire.

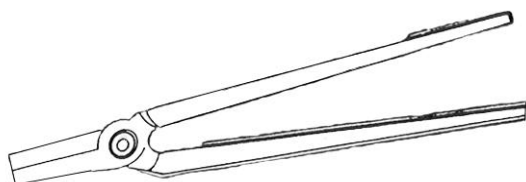
### ROUND-NOSE PLIERS



The round-nose pliers are used to make loops in soft wire. It has smooth, round jaws, a fixed pivot, and curved handles, which may have insulated sleeves.

## TYPES AND USES - Continued

### STRAIGHT-LIP FLAT-JAW TONGS



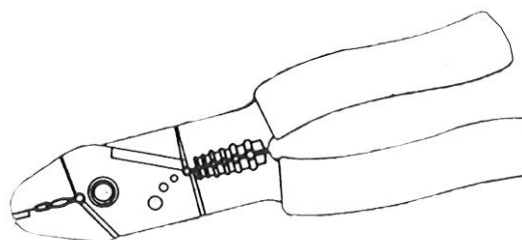
The straight-lip flat-jaw tongs have two straight jaws, a fixed pivot point, and long, straight handles. These tongs are used to hold bearings and bearing inserts while setting them in place.

### END CUTTING PLIERS



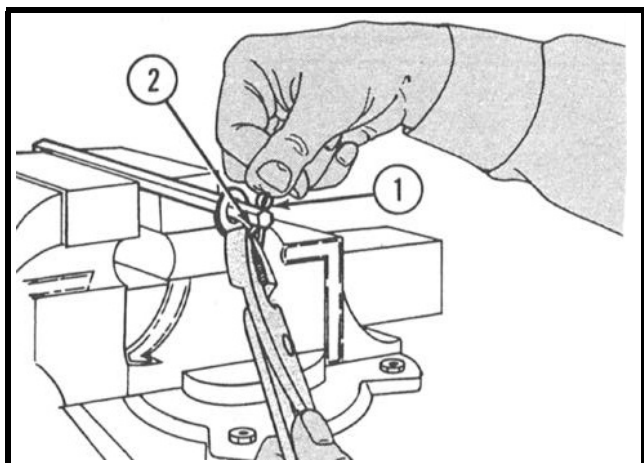
The end cutting pliers are used to crop wire flush to the working surface. They are designed to keep hands and fingers safely away from the wire ends.

### WIRE STRIPPERS (MULTIPURPOSE)



Wire strippers are used to strip insulation from electrical cord. When closed around wire, only the insulation is cut. The wire core remains undamaged.

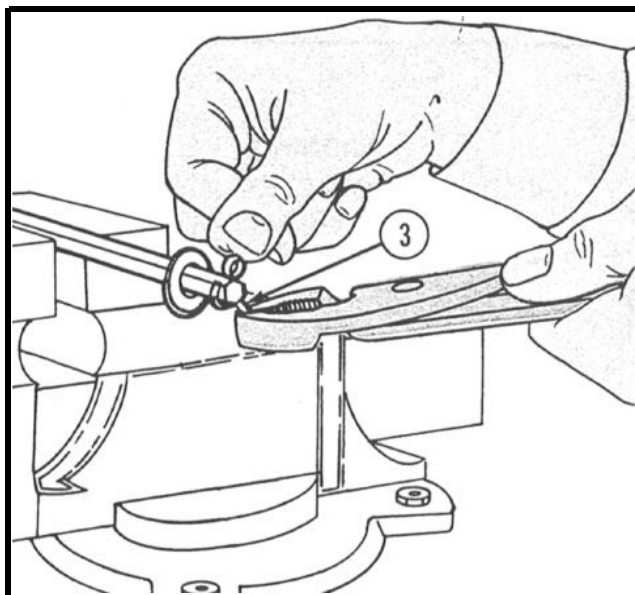
## USING SLIP-JOINT PLIERS



### NOTE

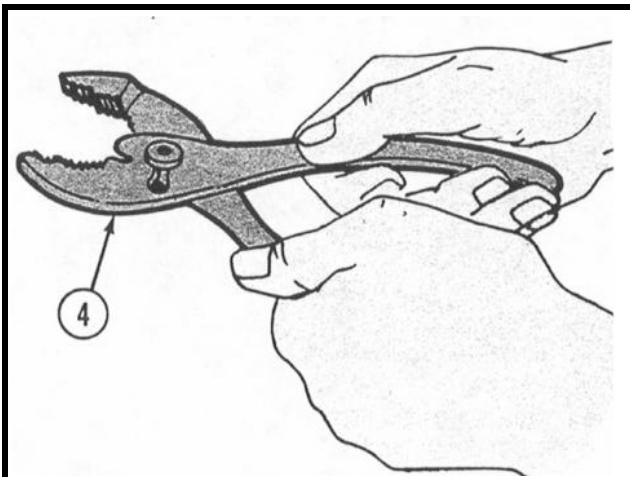
The following procedure for bending the ends of a cotter pin after installation is not the only use of slip-joint pliers.

- 1 With cotter pin installed, push rounded head of pin (1) with thumb of one hand. Grasp the long section of extending cotter pin (2) with pliers, and bend it back flat against the metal surface or nut.



- 2 Grasp the other section of the extending cotter pin (3) and bend it back flat against the metal surface or nut.

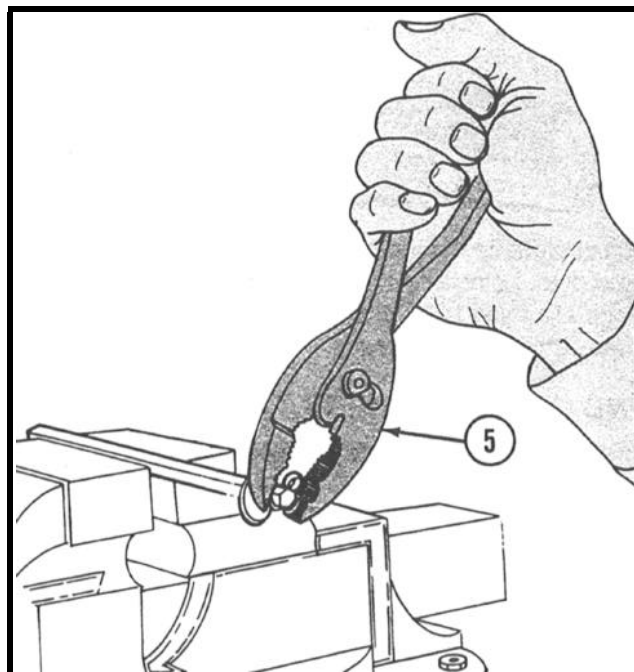
## USING SLIP-JOINT PLIERS - Continued



- 3 Adjust pliers (4) to obtain a wide jaw opening.

### CAUTION

Too much pressure could break the cotter pin or spring the plier jaws.



- 4 Place plier jaws (5) around both bent ends of the cotter pin and apply pressure on the handles, bending cotter pin ends flush.

## USING DIAGONAL CUTTING PLIERS

### WARNING

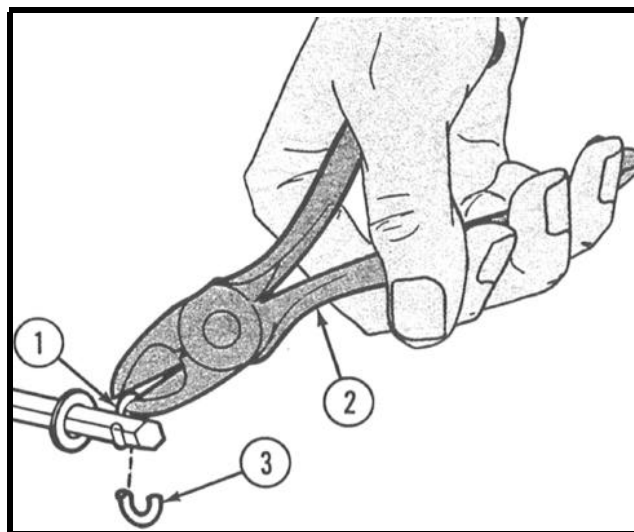
WEAR EYE PROTECTION. KEEP FINGERS AWAY FROM JAWS AND CUTTING EDGES.

### CAUTION

Diagonal cutting pliers are to be used only for cutting.

### NOTE

The following procedure for the removal of a cotter pin is not the only use of diagonal cutting pliers.

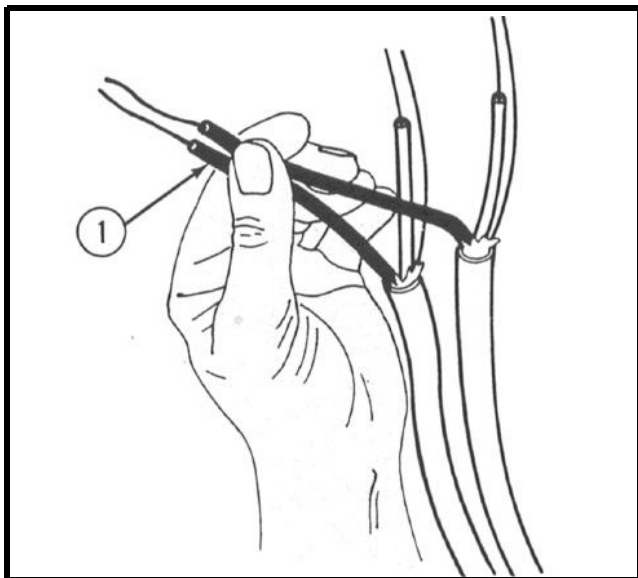


- 1 Position cutters so the rounded end (1) of the cotter pin is between the cutting jaws.
- 2 Close the cutting jaws by applying pressure to the handles (2). This will shear off the end of the cotter pin (3).

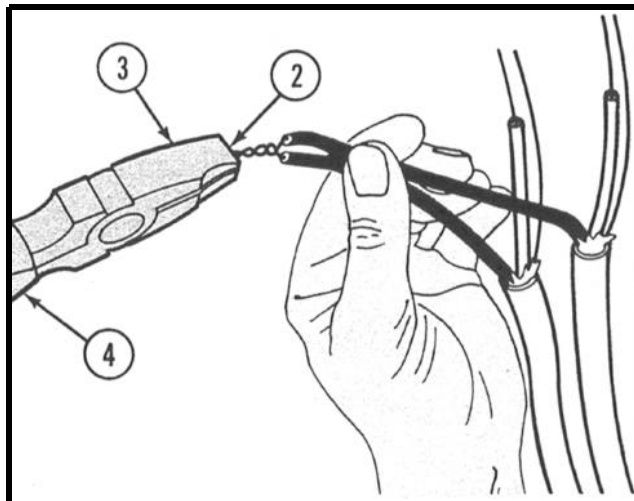
## USING LINEMAN'S SIDE CUTTING PLIERS

### NOTE

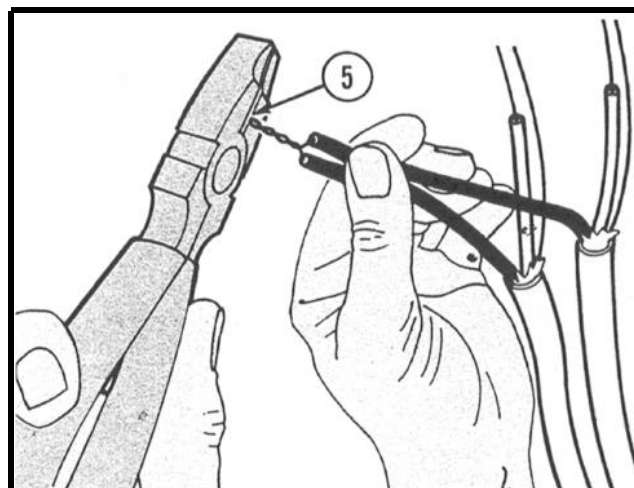
The following procedure for twisting wires is not the only use of lineman's side cutting pliers.



- 1 Using one hand, hold wires to be twisted (1) just above the point where the twist is to begin.



- 2 Grasp the ends of the wires (2) firmly on the serrated jaws (3) and twist the pliers (4).
- 3 Continue twisting pliers until wire has been twisted to desired length.



- 4 Open plier jaws and place the ends of the twisted wires between the cutting edges (5). Trim the ends of the wire.

## CARE OF PLIERS AND TONGS

Remove dirt and grease with a clean rag and apply a light coat of oil after each use.

Store pliers in a tool box or hang on racks when not in use.

Do not remove insulation on handles or oil handles which are insulated.

Do not use pliers for prying or for removing nuts or bolts.

Replace all pliers which have broken jaws, handles, or cutting edges.

